UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/766,842 | 01/30/2004 | Rabih Abou-Chakra | Q79655 | 3849 |

72875 7590 10/06/2008

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

| EXAMINER | |
|---|---|
| BARON, HENRY | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2616 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 10/06/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
kghyndman@sughrue.com
USPatDocketing@sughrue.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/766,842 | ABOU-CHAKRA ET AL. | |
| | Examiner | Art Unit | |
| | HENRY BARON | 2616 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

# *Detailed Action*

AUDIO AND VIDEO DATA PROCESSING DEVICE FOR MULTIMEDIA COMMUNICATION VIA A LOCAL NETWORK SET UP WITHIN AN ASYNCHRONOUS NETWORK

## *Response to Arguments/Remarks*

1. Claims 1 – 13 and 15 are pending in the application with claim 14 cancelled.

2. As a preliminary manner Examiner notes the amended Abstract of the Disclosure now comports with U.S. Patent and Trademark Office guidelines and MPEP § 608.01(b). The Examiner withdraws the Abstract of the Disclosure objection.

3. Applicant's arguments filed 05/07/2008 have been fully considered but they are not persuasive.

4. Applicant argues that Danneels does not teach the limitation "wherein the connection means synchronizes audio and video data according to a delay ". Danneels objective is to deal with capacity issues i.e. avoid overloading. Applicant further argues that Ishibashi omits "the connection means synchronizes audio and video data according to a delay", as recited in claim 1; Ishibashi media streams do not communicate between two pairs of audio and video terminals and teaches of media streams, where the media streams are a master stream and slave streams.

5. With respect to claim 2, Applicant argues that Ishibashi discloses a synchronization mechanism in a high speed network which is not the equivalent to the claimed local network and Ishibashi does not teach or suggest that the connection means synchronizes audio and video data according to a delay.

6. Examiner replies that as a 103 rejection, each reference must teach elements of the claims and complement each other in an obvious context to combine. In this instance, Danneels teaches of video-conferencing that communicate between two pairs of audio and video terminals across a network that can be read 4:[0050] 'The conferencing systems communicate via network 110, which may be either an integrated services digital network (ISDN), a local area network (LAN), or a wide area network (WAN).' As is well known in the art, at least one of these networks can be configured as an asynchronous network with random transmission times e.g. Ethernet. Danneels further teaches of a delay in transmitting audio

and video packet, but not of synchronization per se. This is complemented by the synchronization teachings of Ishibashi. To respond to Applicant's argument that Ishibashi does not teach or suggest that the connection means synchronizes audio and video data according to a delay , in the introduction section page 1010, the author teaches of continuous synchronization adjusts the output timing among media streams e.g. .. lip synchronization refers to the synchronization of spoken voice i.e. audio with the movement of the speakers lips i.e. video. In section two, Media synchronization model, Ishibashi teaches of media units (MU)s to which timestamps associated with its generation time are attached. Sequences of media units form media streams where the inter-stream synchronization is to synchronize a bundle of streams i.e. audio or video to each other. In the context of inter-stream synchronization, Ishibashi teaches of master stream i.e. video streams which are synchronized with slave streams i.e. audio streams and further teaches on page 1011 footnote 5 'if there is no relation between streams, we need not perform media synchronization control'. In section 4.1 and subsections 4.1.1 and 4.1.2, Ishibashi teaches of delays between media streams for loosely and strongly coupled media streams. Examiner also notes that Ishibashi does not teach of media streams that communicate between two pairs of audio and video terminals as this structure is taught by Danneels.

## *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1 – 7, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels in view of Ishibashi et al, A Synchronization Mechanism

for Continuous Media in Multimedia Communication, INFOCOM '95. Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies. Bringing Information to People. Proceedings. IEEE 2-6 April 1995 Page(s): 1010 - 1019 vol.3. hereafter Ishibashi

9. In consideration of claim 1, Danneels teaches of an audio and video data processing device for multimedia communication across an asynchronous network. (Fig 1; Figure Element (FE) 100, FE 110) between a first pair of audio communication terminal (FE 104 and 108) and video communication terminal (FE 102 and 106) and a like second pair (FE 100; Conferencing System B) where the terminals are LAN type (4: [0050+]) with connection means for setting up video and audio link of the two pairs (Figure 1; read analog video and audio, Conferencing System A and B) and video and audio links between the two pairs (FE 110 and 4: [0050-0063] Each conferencing system 100 receives, digitizes, and compresses the analog video signals generated by camera 102 and the analog audio signals generated by microphone 104. The compressed digital video and audio signals are transmitted to the other conferencing system via network 110, where they are decompressed and converted for play on monitor 106 and speaker 108, respectively. In addition, each conferencing system 100 may generate and transmit data signals to the other conferencing system 100 for play on monitor 106. The video and data signals are displayed in different windows on monitor 106. Each conferencing system 100 may also display the locally generated video signals in a separate window). The nature of audio and video signals are typically asynchronous, i.e. not synchronous as demonstrated in speech and images, thus the audio and video terminals are asynchronous and wherein the connection means synchronizes audio and video data according to a delay. (2:[0014] read [a] first subset of the data packets i.e. audio packets, is transmitted from the local node to a remote node, and then a subsequent subset of the data packets i.e. video packets, is transmitted from the local node to the remote node after a delay to avoid overloading the remote node with data packets )

10. However Danneels does not explicitly teach of an asynchronous network with random transmission times.

11. By contrast, Ishibashi teaches of a digital network to support multimedia communications that preserves the temporal relation among media stream (Section 1, paragraph 1.). Further, Ishibashi teaches random transmission times where he contrasts his paper to previous work in the field citing that ".. the network delay bounds are not always known." (Section 1, paragraph 4.).

12. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the random transmission times teachings of Ishibashi to form a network of asynchronous audio and video media streams with random transmission times. This would be advantageous since a network synchronization mechanism based on media streams with random transmission times are more realistic in modeling the way packets (or media units) are transported across networks.

13. With regards to claim 2, Danneels does not teach the device according to claim 1 with first dating means arranged to attach a transmit time mark and an identifier to audio and video data; coming from the first audio and video communication terminal before their transmission to the second pair via the said local network and to attach a receive time mark to the audio and video data coming from the second pair and containing an identifier and a transmit time mark, and their own processing means to determine a time difference representing the transmission time difference between the received audio and video data and presenting the same identifier from their respective transmit and receive time marks to delay by a value representing the time difference the transmission of the received audio data at the first audio communication terminal in relation to the transmission of the received video data at the first video communication terminal. Thus, Danneels does not teach connection means synchronizes audio and video data according to a delay.

14. Ishibashi teaches of a device with first dating means that attaches a transmit time mark and an identifier to audio and video (A/V) data before their transmission to the second like A/V terminal pair. (Section 2; Media Synchronization model; read data as media unit; transmit time mark as timestamp; audio and video data as M media streams 1 – M, Figure 1) across the local network (Figure 1; read high speed network) and attach a receive time mark to the audio and video data from the second pair containing an identifier and a transmit time mark. (Section 2; Media Synchronization model; Figure 1 read destination media stream.). Ishibashi also teaches processing means to determine a time difference representing the transmission time difference between the received audio and video data (Figure 2; read 'i' as audio or video stream 'i'; sigma as difference between timestamps) and presenting the same identifier, i.e. media stream, from their respective transmit and receive time marks i.e. timestamps, and delay by a value representing the transmission time difference of the received audio data at the first audio communication terminal in relation to the transmission of the received video data at the video communication terminal. (Figure 2; also see discussion on page 1011 regarding inter-stream synchronization and master/slave streams; Section 1 Introduction, read delay as adjust output timing).

15. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

16. This modification would be advantageous as it would permit the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

17. With regards to claims 3 – 4, and 15, Danneels does not of a device with processing means arranged to determine a time difference (ET) representing the transmission time difference and a coding and decoding time difference between the received audio and video data, presenting the same identifier and synchronization of audio and video occurs once at the connection means and once at the pair.

18. Ishibashi teaches of media stream coding and decoding performed in the application layer (Figure 1) that are received at synchronization service access point. Further, Ishibashi teaches of the concept of

inter-stream synchronization between master/slave streams. (Section 4.2, page 1015) i.e. synchronization of audio and video occurs once at the connection means and once at the pair. Because less processing is required for audio data, the 'faster' audio stream represents the master stream, the video the slave stream i.e. identifier. (page 1011). Danneels teaches that audio (6: [0024]) and video coding and decoding as part of the process to generate multimedia streams.

19. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

20. This modification would be advantageous as it would further facilitate the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

21. With regards to claims 5 and 7, Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1; i.e. links between FE 102,106 and FE100 video; links between FE 104,108 and FE 100.

22. In reference to claim 6, Danneels does not teach processing means arranged so as to determine the time difference from the transmit and receive time markings of the received audio and video data, and from values representing their respective transmission times between the connection means and the first audio and video communication terminals for which they are intended.

23. Ishibashi teaches of media stream coding and decoding performed in the application layer (Figure 1) that are received at a common synchronization service access point (SSAP). Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1 whose delays can be sent to the SSAP. Further, Ishibashi teaches that time difference can be derived from time markings i.e. timestamps between tightly coupled media-streams such as audio and video (Section 4.2.1 and Figure 4). Further, Ishibashi teaches of the concept of inter-stream synchronization between master/slave streams. Because of relative

shorter period required to process audio data, the audio stream represents the master stream, the video the slave stream (Page 1011).

24. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

25. This modification would be advantageous as it would further facilitate the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

26. With regard to claim 10, Danneel's Conference System (Figure 1, FE 100) represents a connection means that provides a proxy type function for audio and video data to the network LAN.

27. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels in view of Ishibashi et al, A Synchronization Mechanism for Continuous Media in Multimedia Communication, INFOCOM '95. Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies; Bringing Information to People. Proceedings. IEEE 2-6 April 1995 Page(s): 1010 - 1019 vol.3 hereafter Ishibashi, and in further view of Little et al, Network and Operating Systems Support for Digital Audio and Video: Proceedings, 5th International Workshop on Network and Operating Systems Support for Digital Audio and Video, Springer 1995, hereafter Little.

28. With respect to claims 8 – 9, Danneels and Ishibashi teach the limitations of claim 2 but are silent in teaching assignment of priority levels to audio and video data to be transmitted or assigning a lower priority to video data relative to audio data.

29. By contrast, Little teaches in the traffic characteristics and flow control that video streams have lower priority then higher priority audio, i.e. read jitter as characteristic of audio streams. (Page 168 - 169; Traffic Characteristics and Flow Control section).

30. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify inter-stream synchronization between audio and teachings of Danneels and Ishibashi with the audio visual (A/V) priority teachings of Little.

31. By transporting audio streams across a network with a higher priority relative to its companion video stream, the random arrival time of A/V packets at the destination port is mitigated and the distribution of both packet classes are more tightly bounded. This is ultimately advantageous in improving the synchronization of the two data streams.

32. Claims 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels in view of Ishibashi et al, A Synchronization Mechanism for Continuous Media in Multimedia Communication, INFOCOM '95. Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies. Bringing Information to People. Proceedings. IEEE 2-6 April 1995 Page(s): 1010 - 1019 vol.3 hereafter Ishibashi, and in further view of Keshab et al. Digital Signal Processing for Multimedia Systems, CRC Press 1999 pg 245 and 274, hereafter Keshab.

1. With regards to claim 11 – 13 Danneels and Ishibashi teach the limitations of claim 1 but are silent in teaching of processing device for an audio, video, or communication unit.

33. Keshab teaches, circa 1999, of recent developments of microprocessors and DSP chips that provide audio and video processing capabilities (page 245, 2nd paragraph). Further, Keshab teaches that developments of microprocessors can be also be used in wireless communications (page 274, 3rd paragraph).

34. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the inter-stream synchronization between audio and teachings of Danneels and Ishibashi incorporating a digital processing device in the video, audio, and communication unit.

35. Processing audio and video signals with a DSP in the video and audio communication unit improves the fidelity of A/V data and digital processing of communication signals efficiently utilizes bandwidth.

## *Conclusion*

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

37. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

38. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 2616
HB

/Ian N. Moore/

Primary Examiner, Art Unit 2616